

Course Details									
Code					Academic Year			Semester	
NWI202				2			4		
Title				Т	Α	L	ECTS		
Physical Chemistry II						3	1	1	6
Language	German								
Level	Undergraduate X Graduate			Postgrad			duate		
Department / Program	Materials Science and Technology								
Forms of Teaching and Learning	Face to face								
Course Type	Compulsory		X			Elective			
Objectives	Building on a deep • to discuss the p equilibria based or • Have a basic und • to master the evaluation of phys	understan phase beh molecula erstanding most imp ical-chemi	ndin avio ar an g of porta ical d	g of the sub or of real sy of thermody chemical kir ant experim quantities ar	ject, s stems namie netics nental nd pro	student s, proce c conce and rea l techn ocesses	s shoul esses a pts. action o iques	d be al it elect dynami for the	ble to: trodes, and chemical ics. e measurement and
Content	Theory: reactions in water; Electrochemistry; reaction kinetics; Atmospheric chemistry. Practical course: Melting diagram of binary mixtures, pH-dependence of a solvolysis reaction, birefringence of light by nematic liquids, viscosity of liquids, heat of evaporation, cane sugar inversion, viscosity of gases, decomposition of diacetone alcohol, charge transport in electrolyte solutions, pH balance of buffer ¬lösungen, Nernst distribution set, mixing behavior of liquids, quantum mechanics								
Prerequisites									
Coordinator									
Lecturer(s)	Asist Prof.Dr. Sib	el Özenle	r						
Assistant(s)									
Work Placement	No								
Recommended or Required Reading									
Books / Lecture Notes	G. Wedler: Lehrbuch der Physikalischen Chemie; VCH, 5. Aufl., 2004								
Other Sources	<ul> <li>G. Wedler: Lehrbuch der Physikalischen Chemie; VCH, 5. Aufl., 2004</li> <li>Yardımcı Kaynaklar:</li> <li>1. P.W. Atkins: Physikalische Chemie; VCH-Wiley, 4. Aufl., 2006</li> <li>2. T Engel/P. Reid; Physikalische Chemie</li> </ul>								
Additional Course Material									
Documents									
Assignments									
Exams									



Course Compos	sition				
Mathematics un Sciences	d Basic		60%		
Engineering			40%		
Engineering Desi	ign		%		
Social Sciences			%		
Educational Scie	nces		%		
Natural Sciences	;		%		
Health Sciences			%		
Expert Knowledg	ge		%		
Assessment					
Activity		<b>C</b> οι	Percentage (%)		
Midterm Exam		1	20		
Quiz					
Assignments					
Attendance	Jance				
Recitations		1	30		
Projects		1	10		
Final Exam		1	40		
	4				
Total		4		100	
Total ECTS Points and	d Work Load	4		100	
Total ECTS Points and Activ	d Work Load vity	Count	Duration	100 Work Load (Hours)	
Total ECTS Points and Activ Lectures	d Work Load vity	2 Count 15	Duration 2	100 Work Load (Hours) 30	
Total ECTS Points and Activ Lectures Self-Study	d Work Load vity	4 Count 15 15	Duration 2 5	100 Work Load (Hours) 30 75	
Total ECTS Points and Activ Lectures Self-Study Assignments	d Work Load vity	2 Count 15 15 2	Duration 2 5 6	100 Work Load (Hours) 30 75 12	
Total ECTS Points and Activ Lectures Self-Study Assignments Presentation / Se Preparation	d Work Load vity eminar	2 Count 15 15 2	Duration 2 5 6	100 Work Load (Hours) 30 75 12	
Total ECTS Points and Activ Lectures Self-Study Assignments Presentation / So Preparation Midterm Exam	d Work Load vity eminar	2 Count 15 15 2 1	Duration           2           5           6           2           2	100 Work Load (Hours) 30 75 12 2	
Total ECTS Points and Activ Lectures Self-Study Assignments Presentation / Se Preparation Midterm Exam Recitations	d Work Load vity eminar	4 Count 15 2 1 1 1 15	Duration           2           5           6           2           1	100 Work Load (Hours) 30 75 12 2 2 15	
Total ECTS Points and Activ Lectures Self-Study Assignments Presentation / Se Preparation Midterm Exam Recitations Laboratory	d Work Load vity eminar	2 15 2 15 15 15 15 15 15 15	Duration           2           5           6           2           1           2	100 Work Load (Hours) 30 75 12 12 2 15 30	
Total ECTS Points and Active Lectures Self-Study Assignments Presentation / Se Preparation Midterm Exam Recitations Laboratory Projects	d Work Load vity eminar	2 Count 15 2 1 15 15 15 15 15	Duration           2           5           6           2           1           2	100 Work Load (Hours) 30 75 12 12 2 15 30	
Total ECTS Points and Activ Lectures Self-Study Assignments Presentation / So Preparation Midterm Exam Recitations Laboratory Projects Final Exam	d Work Load vity eminar	4 Count 15 2 1 15 15 15 15 15 15 15 15 15	Duration         2         5         6         2         1         2         1         2         1         2         2         1         2         2         2         2         2         2         2         2         2         2         2         2         2	100 Work Load (Hours) 30 75 12 2 2 15 30 30 2	
Total ECTS Points and Activ Lectures Self-Study Assignments Presentation / Se Preparation Midterm Exam Recitations Laboratory Projects Final Exam	d Work Load vity eminar	Count         Instant         Instant <thinstant< th=""> <thinstant< th=""> <thins< th=""><th>Duration           2           5           6           2           1           2           1           2           1           2           1           2           5</th><th>100 Work Load (Hours) 30 75 12 2 2 15 30 2 2 2 2 166</th></thins<></thinstant<></thinstant<>	Duration           2           5           6           2           1           2           1           2           1           2           1           2           5	100 Work Load (Hours) 30 75 12 2 2 15 30 2 2 2 2 166	
Total ECTS Points and Activ Lectures Self-Study Assignments Presentation / Se Preparation Midterm Exam Recitations Laboratory Projects Final Exam	d Work Load	4 Count 15 2 1 1 15 15 15 15 15 15 15 15	Duration         2         5         6         2         1         2         1         2         1         2         1         2         5         6         1         2         2	100 Work Load (Hours) 30 75 12 2 15 30 2 166 6	
Total  Formation for the second secon	d Work Load	Count       15         15       2         1       1         15       1         15       1         15       1         15       1         15       1         15       1         ECTS Point	Duration         2         5         6         2         1         2         1         2         1         2         1         2         5         6         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         1         2         2         2         3         3         4	100 Work Load (Hours) 30 75 12 12 2 15 30 2 166 6	
Total ECTS Points and Activ Lectures Self-Study Assignments Presentation / Se Preparation Midterm Exam Recitations Laboratory Projects Final Exam Learning Outco	d Work Load vity eminar eminar Building on a d real systems, p concepts.	Count 15 15 2 1 1 15 15 15 15 ECTS Poin eep understanding of the subjourcesses at electrodes, and compared to the subjources of the subject of the subj	Duration         2         5         6         2         1         2         1         2         1         2         5         1         2         5         6         1         2         5         6         1         2         1         2         1         2         1         2         1         2         1         2         1         2         5         1         2         2         1         2         1         2         1         2         2         1         2         2         5         5         6         7         2         2         2         2	100 Work Load (Hours) 30 75 12 2 2 15 30 2 166 6 4 5 6 5 5 5 6 5 5 5 5 5 5 5 5 5 5 5 5 5	



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10							
11							
12							
Weekly Content							
1	Foundations o	of reaction kin	etics				
2	Basics, complex kinetics and approximation, activation energy and catalysis						
3	Basics, complex kinetics and approximation, activation energy and catalysis						
4	Basics, complex kinetics and approximation, activation energy and catalysis						
5	postulates of quantum mechanics, Schrödinger equation, simple quantum chemical models						
6	postulates of quantum mechanics, Schrödinger equation, simple quantum chemical models						
7	postulates of	postulates of quantum mechanics, Schrödinger equation, simple quantum chemical models					
8	postulates of quantum mechanics, Schrödinger equation, simple quantum chemical models						
9	quantum-mechanical approximation, atomic structure						
10	quantum-mechanical approximation, atomic structure						
11	quantum-mechanical approximation, atomic structure						
12	quantum-mechanical approximation, atomic structure						
13	chemical bond, electromagnetic spectrum						
14	chemical bond, electromagnetic spectrum						
15	chemical bond, electromagnetic spectrum						
Contribution of Learning Outcomes to Program Objectives (1-5)							
	P1	P2	P3	P4	P5	P6	P7
All	3	1					
1							
2							
<u>з</u>							
5							
	1		1	1	1		



Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High
Compiled by:	
Date of Compilation:	